



#5

SEQUENCE LISTING

<110> Gangolli, Esha A
Stone, David J

<120> ENDOZEPINE-LIKE PROTEINS, POLYNUCLEOTIDES ENCODING THEM
AND METHODS OF USING THE SAME

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 <213> Homo sapiens

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Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe Glu Ala Ala
 35 40 45

Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln Pro Thr
 50 55 60

Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu
 65 70 75 80

Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg
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Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu
 100 105 110

Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met
 115 120 125

Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe
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Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr
 145 150 155 160

Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu Gly Asn
 165 170 175

Val Leu Thr Ser Ala Pro Asn Ala Lys Thr Val Asn Gly Lys Ala Glu
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Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Ala Gln Glu Glu
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Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met Lys Lys

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Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp		
225	230	235
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Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala Ser Ser		
245	250	255
Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp Glu Asn		
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Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp		
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Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln Tyr Tyr		
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Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val		
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Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Ile Gln His Leu		
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Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly Asp Gly Glu		
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Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu Gln Ile		
435	440	445
Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val Leu Gln		
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465	470	475
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Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln Arg Pro Ser		
485	490	495
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525

Arg Arg Lys Leu Asn
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<211> 3920
<212> DNA
<213> Homo sapiens

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<211> 534

<212> PRT

<213> Homo sapiens

<400> 7

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		20						25							

Glu	Met	Ala	Asp	Thr	Arg	Ser	Val	His	Glu	Thr	Arg	Phe	Glu	Ala	Ala
															45
		35					40								

Val	Lys	Val	Ile	Gln	Ser	Leu	Pro	Lys	Asn	Gly	Ser	Phe	Gln	Pro	Thr
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							55					60			

Asn	Glu	Met	Met	Leu	Lys	Phe	Tyr	Ser	Phe	Tyr	Lys	Gln	Ala	Thr	Glu
															65
					70				75						80

Gly	Pro	Cys	Lys	Leu	Ser	Arg	Pro	Gly	Phe	Trp	Asp	Pro	Ile	Gly	Arg
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									90						95

Tyr	Lys	Trp	Asp	Ala	Trp	Ser	Ser	Leu	Gly	Asp	Met	Thr	Lys	Glu	Glu
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								105					110		

Ala	Met	Ile	Ala	Tyr	Val	Glu	Glu	Met	Lys	Lys	Ile	Ile	Glu	Thr	Met
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									120				125		

Pro	Met	Thr	Glu	Lys	Val	Glu	Glu	Leu	Leu	Arg	Val	Ile	Gly	Pro	Phe
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165	170	175	
Val Leu Thr Ser Ala Pro Asn Ala Lys Thr Val Asn Gly Lys Ala Glu			
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Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Ala Gln Glu Glu			
195	200	205	
Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met Lys Lys			
210	215	220	
Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp			
225	230	235	240
Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala Ser Ser			
245	250	255	
Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp Glu Asn			
260	265	270	
Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp Ile Asn			
275	280	285	
Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp			
290	295	300	
Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln Glu			
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Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln Tyr Tyr			
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Leu Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe Arg Glu			
340	345	350	
Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val			
355	360	365	
Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu Asp Gly			
370	375	380	
Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly Gly Glu Thr			
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Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Met Gln His			
405	410	415	
Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly Asp Gly			
420	425	430	
Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu Gln			
435	440	445	
Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val Leu			

450

455

460

Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala Leu Gln Ala Lys Ser
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Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln Arg Pro
485 490 495

Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe Ala Ile
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Arg Arg Arg Lys Leu Asn
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<211> 534
<212> PRT
<213> Homo sapiens

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35 40 45

Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln Pro Thr
50 55 60

Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu
65 70 75 80

Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg
85 90 95

Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu
100 105 110

Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met
115 120 125

Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe
130 135 140

Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr
145 150 155 160

Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu Gly Asn
165 170 175

Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys Ala Glu
180 185 190

Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Ala Gln Glu Glu

195	200	205
Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys		
210	215	220
Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp		
225	230	235
Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala Ser Ser		
245	250	255
Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp Glu Asn		
260	265	270
Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp Ile Asn		
275	280	285
Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp		
290	295	300
Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln Glu		
305	310	315
320		
Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln Tyr Tyr		
325	330	335
Leu Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe Arg Glu		
340	345	350
Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val		
355	360	365
Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu Asp Gly		
370	375	380
Arg Asn Asn Ser Gly Ala Leu His Arg Glu Lys Arg Gly Gly Glu Thr		
385	390	395
400		
Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Met Gln His		
405	410	415
Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly Asp Gly		
420	425	430
Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu Gln		
435	440	445
Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val Leu		
450	455	460
Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala Leu Gln Ala Lys Ser		
465	470	475
480		
Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln Arg Pro		
485	490	495
Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe Ala Ile		

500	505	510
Ile Trp Pro Phe Ile Ala Gln Trp Leu Val Tyr Leu Tyr Tyr Gln Arg		
515	520	525
Arg Arg Arg Lys Leu Asn		
530		
<210> 11		
<211> 89		
<212> PRT		
<213> Artificial Sequence		
<220>		
<223> Description of Artificial Sequence: Acyl CoA		
binding protein domain sequence		
<400> 11		
Leu Gln Glu Asp Phe Glu Ala Ala Ala Glu Lys Val Lys Lys Leu Lys		
1	5	10
15		
Lys Asn Gly Pro Val Lys Pro Ser Asn Glu Glu Lys Leu Lys Leu Tyr		
20	25	30
Ser Leu Tyr Lys Gln Ala Thr Val Gly Asp Val Asn Thr Glu Arg Pro		
35	40	45
Gly Met Phe Asp Leu Lys Gly Arg Ala Lys Trp Asp Ala Trp Asn Glu		
50	55	60
Leu Lys Gly Met Ser Lys Glu Glu Ala Met Lys Ala Tyr Ile Ala Lys		
65	70	75
80		
Val Glu Glu Leu Ile Ala Lys Tyr Ala		
85		
<210> 12		
<211> 89		
<212> PRT		
<213> Artificial Sequence		
<220>		
<223> Description of Artificial Sequence: Acyl CoA		
binding protein domain sequence		
<400> 12		
Leu Gln Glu Asp Phe Glu Ala Ala Ala Glu Lys Val Lys Lys Leu Lys		
1	5	10
15		
Lys Asn Gly Pro Val Lys Pro Ser Asn Glu Glu Lys Leu Lys Leu Tyr		
20	25	30
Ser Leu Tyr Lys Gln Ala Thr Val Gly Asp Val Asn Thr Glu Arg Pro		
35	40	45

Gly Met Phe Asp Leu Lys Gly Arg Ala Lys Trp Asp Ala Trp Asn Glu
 50 55 60

Leu Lys Gly Met Ser Lys Glu Glu Ala Met Lys Ala Tyr Ile Ala Lys
 65 70 75 80

Val Glu Glu Leu Ile Ala Lys Tyr Ala
 85

<210> 13
 <211> 534
 <212> PRT
 <213> Homo sapiens

<220>
 <221> misc_feature
 <222> (3)...(3)
 <223> "Xaa" = "Ile", "Leu", "Val" or "Phe"

<400> 13
 Met Tyr Xaa Phe His Ala Gly Ser Trp Glu Ser Trp Cys Cys Cys Cys
 1 5 10 15

Leu Ile Pro Ala Asp Arg Pro Trp Asp Arg Gly Gln His Trp Gln Leu
 20 25 30

Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe Glu Ala Ala
 35 40 45

Val Lys Val Ile Gln Ser Leu Pro Lys Asn Asp Ser Phe Gln Pro Thr
 50 55 60

Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr Glu
 65 70 75 80

Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile Gly Arg
 85 90 95

Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu Glu
 100 105 110

Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu Thr Met
 115 120 125

Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly Pro Phe
 130 135 140

Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp Ile Thr
 145 150 155 160

Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu Gly Asn
 165 170 175

Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys Ala Glu
 180 185 190

Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Ala Gln Glu Glu
 195 200 205
 Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met Lys Lys
 210 215 220
 Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly Tyr Asp
 225 230 235 240
 Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala Ser Ser
 245 250 255
 Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp Glu Asn
 260 265 270
 Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp Ile Asn
 275 280 285
 Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr Ser Asp
 290 295 300
 Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln Glu
 305 310 315 320
 Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln Tyr Tyr
 325 330 335
 Leu Gly Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe Arg Glu
 340 345 350
 Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met Gln Val
 355 360 365
 Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu Asp Gly
 370 375 380
 Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly Gly Glu Thr
 385 390 395 400
 Asp Glu Phe Ser Asn Val Arg Arg Gly Arg His Arg Met Gln His
 405 410 415
 Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly Asp Gly
 420 425 430
 Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu Gln
 435 440 445
 Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val Leu
 450 455 460
 Gln Arg Leu Gln Lys Leu Glu Thr Leu Thr Ala Leu Gln Ala Lys Ser
 465 470 475 480
 Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln Arg Pro
 485 490 495

Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe Ala Ile
500 505 510

Ile Trp Pro Phe Ile Ala Gln Trp Leu Val Tyr Leu Tyr Tyr Gln Arg
515 520 525

Arg Arg Arg Lys Leu Asn
530

<210> 14
<211> 536
<212> PRT
<213> Homo sapiens

<400> 14
Met Leu Phe Leu Ser Phe His Ala Gly Ser Trp Glu Ser Trp Cys Cys
1 5 10 15

Cys Cys Leu Ile Pro Ala Asp Arg Pro Trp Asp Arg Gly Gln His Trp
20 25 30

Gln Leu Glu Met Ala Asp Thr Arg Ser Val His Glu Thr Arg Phe Glu
35 40 45

Ala Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln
50 55 60

Pro Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala
65 70 75 80

Thr Glu Gly Pro Cys Lys Leu Ser Arg Pro Gly Phe Trp Asp Pro Ile
85 90 95

Gly Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys
100 105 110

Glu Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Ile Glu
115 120 125

Thr Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu Arg Val Ile Gly
130 135 140

Pro Phe Tyr Glu Ile Val Glu Asp Lys Lys Ser Gly Arg Ser Ser Asp
145 150 155 160

Ile Thr Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu
165 170 175

Gly Asn Val Leu Thr Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys
180 185 190

Ala Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Glu Ala Gln
195 200 205

Glu Glu Val Lys Gly Ala Glu Gln Ser Asp Asn Asp Lys Lys Met Met
210 215 220

Lys Lys Ser Ala Asp His Lys Asn Leu Glu Val Ile Val Thr Asn Gly
 225 230 235 240
 Tyr Asp Lys Asp Gly Phe Val Gln Asp Ile Gln Asn Asp Ile His Ala
 245 250 255
 Ser Ser Ser Leu Asn Gly Arg Ser Thr Glu Glu Val Lys Pro Ile Asp
 260 265 270
 Glu Asn Leu Gly Gln Thr Gly Lys Ser Ala Val Cys Ile His Gln Asp
 275 280 285
 Ile Asn Asp Asp His Val Glu Asp Val Thr Gly Ile Gln His Leu Thr
 290 295 300
 Ser Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly
 305 310 315 320
 Gln Glu Glu Ser Leu Asp Ser Phe Thr Ser Asn Asn Gly Pro Phe Gln
 325 330 335
 Tyr Tyr Leu Gly Gly His Ser Ser Gln Pro Met Glu Asn Ser Gly Phe
 340 345 350
 Arg Glu Asp Ile Gln Val Pro Pro Gly Asn Gly Asn Ile Gly Asn Met
 355 360 365
 Gln Val Val Ala Val Glu Gly Lys Gly Glu Val Lys His Gly Gly Glu
 370 375 380
 Asp Gly Arg Asn Asn Ser Gly Ala Pro His Arg Glu Lys Arg Gly Gly
 385 390 395 400
 Glu Thr Asp Glu Phe Ser Asn Val Arg Arg Gly Arg Gly His Arg Met
 405 410 415
 Gln His Leu Ser Glu Gly Thr Lys Gly Arg Gln Val Gly Ser Gly Gly
 420 425 430
 Asp Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn
 435 440 445
 Glu Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn
 450 455 460
 Val Leu Gln Arg Leu Gln Lys Leu Glu Met Leu Thr Ala Leu Gln Ala
 465 470 475 480
 Lys Ser Ser Thr Ser Thr Leu Gln Thr Ala Pro Gln Pro Thr Ser Gln
 485 490 495
 Arg Pro Ser Trp Trp Pro Phe Glu Met Ser Pro Gly Val Leu Thr Phe
 500 505 510
 Ala Ile Ile Trp Pro Phe Ile Ala Gln Trp Leu Val Tyr Leu Tyr Tyr
 515 520 525

Gln Arg Arg Arg Arg Lys Leu Asn
530 535

<210> 15
<211> 533
<212> PRT
<213> Homo sapiens

<400> 15
Met Phe Gln Phe His Ala Gly Ser Trp Glu Ser Trp Cys Cys Cys Cys
1 5 10 15

Cys Leu Ile Pro Gly Asp Arg Pro Trp Asp Arg Gly Arg Arg Trp Arg
20 25 30

Leu Glu Met Arg His Thr Arg Ser Val His Glu Thr Arg Phe Glu Ala
35 40 45

Ala Val Lys Val Ile Gln Ser Leu Pro Lys Asn Gly Ser Phe Gln Pro
50 55 60

Thr Asn Glu Met Met Leu Lys Phe Tyr Ser Phe Tyr Lys Gln Ala Thr
65 70 75 80

Glu Gly Pro Cys Lys Leu Ser Lys Pro Gly Phe Trp Asp Pro Val Gly
85 90 95

Arg Tyr Lys Trp Asp Ala Trp Ser Ser Leu Gly Asp Met Thr Lys Glu
100 105 110

Glu Ala Met Ile Ala Tyr Val Glu Glu Met Lys Lys Ile Leu Glu Thr
115 120 125

Met Pro Met Thr Glu Lys Val Glu Glu Leu Leu His Val Ile Gly Pro
130 135 140

Phe Tyr Glu Ile Val Glu Asp Lys Ser Gly Arg Ser Ser Asp Leu
145 150 155 160

Thr Ser Val Arg Leu Glu Lys Ile Ser Lys Cys Leu Glu Asp Leu Gly
165 170 175

Asn Val Leu Ala Ser Thr Pro Asn Ala Lys Thr Val Asn Gly Lys Ala
180 185 190

Glu Ser Ser Asp Ser Gly Ala Glu Ser Glu Glu Ala Ala Gln Glu
195 200 205

Asp Pro Lys Arg Pro Glu Pro Arg Asp Ser Asp Lys Lys Met Met Lys
210 215 220

Lys Ser Ala Asp His Lys Asn Leu Glu Ile Ile Val Thr Asn Gly Tyr
225 230 235 240

Asp Lys Asp Ser Phe Val Gln Gly Val Gln Asn Ser Ile His Thr Ser

245	250	255
Pro Ser Leu Asn Gly Arg Cys Thr Glu Glu Val Lys Ser Val Asp Glu		
260	265	270
Asn Leu Glu Gln Thr Gly Lys Thr Val Val Phe Val His Gln Asp Val		
275	280	285
Asn Ser Asp His Val Glu Asp Ile Ser Gly Ile Gln His Leu Thr Ser		
290	295	300
Asp Ser Asp Ser Glu Val Tyr Cys Asp Ser Met Glu Gln Phe Gly Gln		
305	310	315
Glu Glu Ser Leu Asp Gly Phe Ile Ser Asn Asn Gly Pro Phe Ser Tyr		
325	330	335
Tyr Leu Gly Gly Asn Pro Ser Gln Pro Leu Glu Ser Ser Gly Phe Pro		
340	345	350
Glu Ala Val Gln Gly Leu Pro Gly Asn Gly Ser Pro Glu Asp Met Gln		
355	360	365
Gly Ala Val Val Glu Gly Lys Gly Glu Val Lys Arg Gly Gly Glu Asp		
370	375	380
Gly Gly Ser Asn Ser Gly Ala Pro His Arg Glu Lys Arg Ala Gly Glu		
385	390	395
Ser Glu Glu Phe Ser Asn Ile Arg Arg Gly Arg Gly His Arg Met Gln		
405	410	415
His Leu Ser Glu Gly Ser Lys Gly Arg Gln Val Gly Ser Gly Gly Asp		
420	425	430
Gly Glu Arg Trp Gly Ser Asp Arg Gly Ser Arg Gly Ser Leu Asn Glu		
435	440	445
Gln Ile Ala Leu Val Leu Met Arg Leu Gln Glu Asp Met Gln Asn Val		
450	455	460
Leu Gln Arg Leu His Lys Leu Glu Met Leu Ala Ala Ser Gln Ala Lys		
465	470	475
Ser Ser Ala Leu Gln Thr Ser Asn Gln Pro Thr Ser Pro Arg Pro Ser		
485	490	495
Trp Trp Pro Phe Glu Met Ser Pro Gly Ala Leu Thr Phe Ala Ile Ile		
500	505	510
Trp Pro Phe Ile Ala Gln Trp Leu Val His Leu Tyr Tyr Gln Arg Arg		
515	520	525
Arg Arg Lys Leu Asn		
530		

<210> 16	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 16	22
ccttttgggg catgttgcg	
<210> 17	
<211> 32	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 17	32
cagttccagt agtcttcttg aggaaaacac ca	
<210> 18	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 18	22
aggcaaaatc atcaacatca ac	
<210> 19	
<211> 26	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 19	26
ctcagccac ctcacagaga ccatct	
<210> 20	
<211> 22	
<212> DNA	
<213> Artificial Sequence	

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 20
ttagcacacc aggagacatc tc

22

<210> 21
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 21
aatcatcaac atcaaacattg ca

22

<210> 22
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 22
ctcagcccac ctcacagaga ccatct

26

<210> 23
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 23
gttagcacac caggagacat ct

22

<210> 24
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 24

atcagaactc ctgccactct tt 22

<210> 25
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 25
tggacctatg acacgcagca attctt 26

<210> 26
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 26
atgccaatga ctgagaaaatg tg 22

<210> 27
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 27
tattacttgg gtggtcattc ca 22

<210> 28
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 28
caaccatgg aaaattctgg atttcg 26

<210> 29
<211> 22

<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 29
atattcccaa tggccatt tc 22

<210> 30
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 30
agaaaaccac aggaagaatg gt 22

<210> 31
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 31
cactttgtgg gctgcccata atcttt 26

<210> 32
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 32
ataatgatgc ctgaacacca aa 22

<210> 33
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer

Sequence

<400> 33
aggcaaaatc atcaacatca ac 22

<210> 34
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 34
ctcagccac ctcacagaga ccatct 26

<210> 35
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 35
ttagcacacc aggagacatc tc 22

<210> 36
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 36
gacctatgac acgcagcaat 20

<210> 37
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 37
tcttcaactt tctcagtcat tggcat 26

<210> 38	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 38	
ggaagccatg attgcatatg	20
<210> 39	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 39	
aggcaaaaatc atcaacatca ac	22
<210> 40	
<211> 26	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 40	
ctcagcccac ctcacagaga ccatct	26
<210> 41	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer	
Sequence	
<400> 41	
ttagcacacc aggagacatc tc	22
<210> 42	
<211> 22	
<212> DNA	
<213> Artificial Sequence	

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 42
aatcatcaac atcaaacattg ca 22

<210> 43
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 43
ctcagcccac ctcacagaga ccatct 26

<210> 44
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 44
gttagcacac caggagacat ct 22

<210> 45
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 45
atcagaactc ctgccactct tt 22

<210> 46
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer
Sequence

<400> 46
tggacctatg acacgcagca attctt 26

<210> 47
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 47
atgccaatga ctgagaaaagt tg 22

<210> 48
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 48
tattacttgg gtggtcattc ca 22

<210> 49
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 49
caacccatgg aaaattctgg atttcg 26

<210> 50
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 50
atattcccaa tggccatt tc 22

<210> 51

<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 51
aggcaaaatc atcaacatca ac 22

<210> 52
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 52
ctcagccac ctcacagaga ccatct 26

<210> 53
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 53
ttagcacacc aggagacatc tc 22

<210> 54
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 54
gacctatgac acgcagcaat 20

<210> 55
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: PCR Primer Sequence	
<400> 55	
tcttcaacct tctcagtcat tggcat	26
<210> 56	
<211> 20	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer Sequence	
<400> 56	
ggaagccatg attgcatatg	20
<210> 57	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer Sequence	
<400> 57	
tggcaggagt tctgatataa cc	22
<210> 58	
<211> 26	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer Sequence	
<400> 58	
tcagtccgac tggagaaaat ctctaa	26
<210> 59	
<211> 22	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: PCR Primer Sequence	
<400> 59	
gcgtttggag tagaagttag aa	22

<210> 60
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 60
tggcaggagt tctgatataa cc

22

<210> 61
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 61
tcagtccgac tggagaaaaat ctctaa

26

<210> 62
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Description of Artificial Sequence: PCR Primer Sequence

<400> 62
gcgtttggag tagaagttag aa

22